

# Making Manure a Profit Center

## What are Bankers Looking For?

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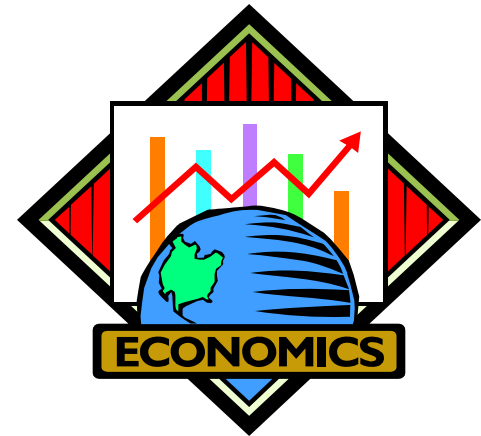
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AgSTAR National Conference  
Sacramento, CA  
November 27<sup>th</sup>, 2007



# Issues to Consider

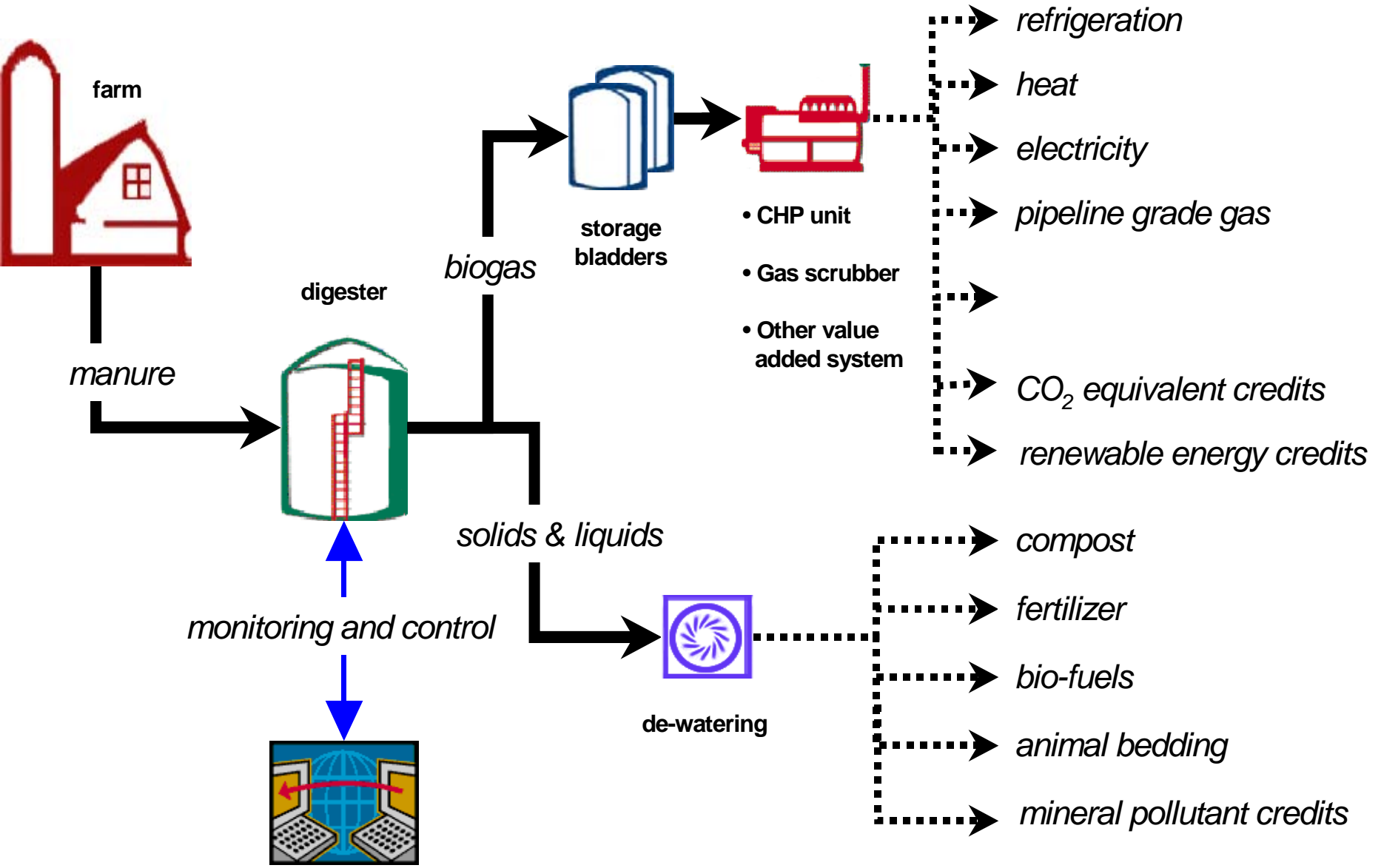
- Waste handling options
- Management challenges
- Economics
- Financing considerations
- Carbon Credits
- There are as many questions as answers



# Waste Handling Options

- Daily haul
- Store and spread
- Grazing
- Separation
- Composting
- Methane Digesters
- Gasification
- Others

# ANAEROBIC DIGESTION SYSTEM



# Other Observations

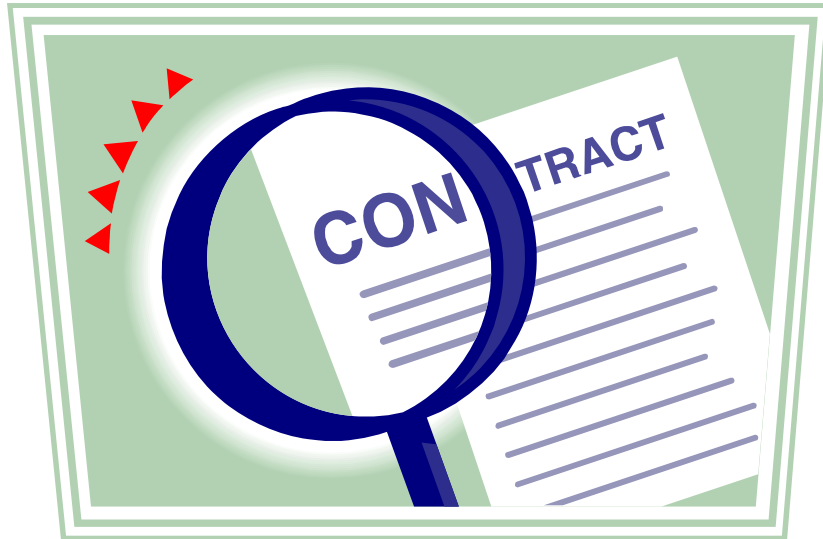
- Is it proven technology?
- There are too many zeros on these projects to be doing research and development
- What is the goal of the business
  - Reduce odor
  - Bedding source
  - Sell energy (electricity, bio-gas)
  - Transport nutrients differently/further

# Management Challenges

- Cost
- Storage
- Management
- Labor
- Transportation
- Timing



# Management Challenges



- **System Management**
- **Contract negotiation**
  - For technology
  - Potential sales (energy, by-products)
  - Carbon/other credits
- **Accounting for actual and avoided revenue and costs**

# Economics

- An example: Manure Digester
  - Digester and separation costs - \$1.35 million
  - Generation System - owned by utility
  - Assume 12-year amortization
  - Interest rate – 7.5%
  - Equity – cash and grants - \$350K
  - Debt Service = \$128,000/year



# Loan Structure

Assumption: 800 cow dairy farm

- Working Capital line \$1,600,000
- Machinery \$ Equipment note 600,000
- Facility & real estate bank 1<sup>st</sup> 1,100,000
- Facility & RE-FSA-FO 2<sup>nd</sup> 850,000



# Loan Structure

Assumption: 800 cow dairy farm

- Personal property loan-to-value 70%
- Real Estate loan-to-value 1<sup>st</sup> 43%  
2<sup>nd</sup> 75%
- Add methane digester
  - Cost \$1,400,000
  - Less grants 350,000
  - Loans 1,050,000
- How do you finance this?



# Economics

- Revenue:

|            |        |
|------------|--------|
| Gas sales: | \$150K |
|------------|--------|

- Expenses:

|           |     |
|-----------|-----|
| Operating | 31K |
|-----------|-----|

|              |             |
|--------------|-------------|
| Debt Service | <u>128K</u> |
|--------------|-------------|

|               |        |
|---------------|--------|
| Net Cash Flow | \$(9K) |
|---------------|--------|

Less: Reduced bedding costs, cost of handling separated liquids/solids, others?



# Example

## Assumptions #2

1,600 cow dairy operation

Plug-flow digester and generator

Project Cost                      \$1.75 million

Grants and Equity                \$450,000

Loan \$1,300,000, 7.5%, 10 year amortization

# Income and Cash Flow Statement Forecast

|                                                                                       | <u>\$.03/kwh</u>  | <u>\$.06/kwh</u> |
|---------------------------------------------------------------------------------------|-------------------|------------------|
| Electricity Sales                                                                     | \$106,000         | \$212,000        |
| Bedding Sales                                                                         | <u>50,000</u>     | <u>50,000</u>    |
| <b>Sales</b>                                                                          | \$156,000         | \$262,000        |
| Less Operating Costs*                                                                 | 53,000            | 53,000           |
| Depreciation                                                                          | <u>87,500</u>     | <u>87,500</u>    |
| <b>Net Income</b>                                                                     | \$15,500          | \$121,500        |
| Less Debt Service                                                                     | <u>185,000</u>    | <u>185,000</u>   |
| <b>Net Cash Flow</b>                                                                  | <b>(\$82,000)</b> | <b>\$24,000</b>  |
| *Does not include bedding cost savings, carbon or other renewable energy credit sales |                   |                  |

# Financing Considerations

- Regulations and permit requirements
- Will it be a separate legal entity
- Contracts and assignability
- Cost of production analysis



# Financing Considerations

- Risk assessment
- Revenues, costs, avoided costs
- Management capacity
- Leverage of the project and of the business



# Financing Considerations

- Collateral
- Equity investments (cash, grants)
- Loan terms- amortization, guarantees (personal, government)



# Summary

- Develop goals for the business first
- Consider your options
- Complete a risk assessment
- Understand the contract – present and future benefits
- Equity, grants and debt considerations
- Keep your banker educated and informed

